INTERNATIONAL
ASSOCIATION FOR TESTING MATERIALS.

AMERICAN SECTION.

BULLETIN No. 12. MAY, 1900.

PROPOSED STANDARD SPECIFICATIONS
FOR
STEEL SPLICE BARS.

RECOMMENDED BY AMERICAN BRANCH OF COMMITTEE No. 1, MAY 1, 1900.

There will be a discussion of these specifications at the Third Annual Meeting of the American Section, to be held in New York, on October 25-27, 1900, and you are requested to send in your views by letter, or to be present and take part in the oral discussion.

After the Annual Meeting, Committee No. 1 will consider the points raised, and make any modifications that may be found necessary; and, if so decided at the Annual Meeting, the specifications will be sent to all members of the American Section for approval by letter ballot.

If the other countries perform their work in the same general manner, the final work of the introduction of International Specifications will be reduced to a very simple matter, as there will only be a limited number of specifications to consider instead of hundreds as at the present time.

WM. R. WEBSTER,
Chairman of American Branch of Committee No. 1.

Process of Manufacture.

1. Steel for splice bars may be made by the Bessemer or open-hearth process.

Chemical Properties.

2. Steel for splice bars shall conform to the following limits in chemical composition:

	Per cent.
Carbon shall not exceed	0.15
Phosphorus shall not exceed	0.10
Manganese	0.30 to 0.60

Physical Properties.

3. Splice bar steel shall conform to the following physical qualities: — **Tensile Tests.**

Tensile strength, pounds per square inch	54,000 to 64,000
Yield point, pounds per square inch	32,000
Elongation, per cent. in eight inches shall not be less than	25

4. (*a*) A test specimen cut from the head of the splice bar shall bend 180° flat on itself without fracture on the outside of the bent portion **Bending Tests.**

(*b*) If preferred the bending tests may be made on an unpunched splice bar, which, if necessary, shall be first flattened, and shall then be bent 180° flat on itself without fracture on the outside of the bent portion.

Test Pieces and Methods of Testing.

5. A test specimen of eight inch (8″) gauged length, cut from the head of the splice bar, shall be used to determine the physical properties specified in paragraph No. 3. **Test Specimen for Tensile Test**

6. One tensile test specimen shall be taken from the rolled splice bars of each blow or melt, but in case this develops flaws, or breaks outside of the middle third of its gauged length, it may be discarded and another test specimen substituted therefor. **Number of Tensile Tests.**

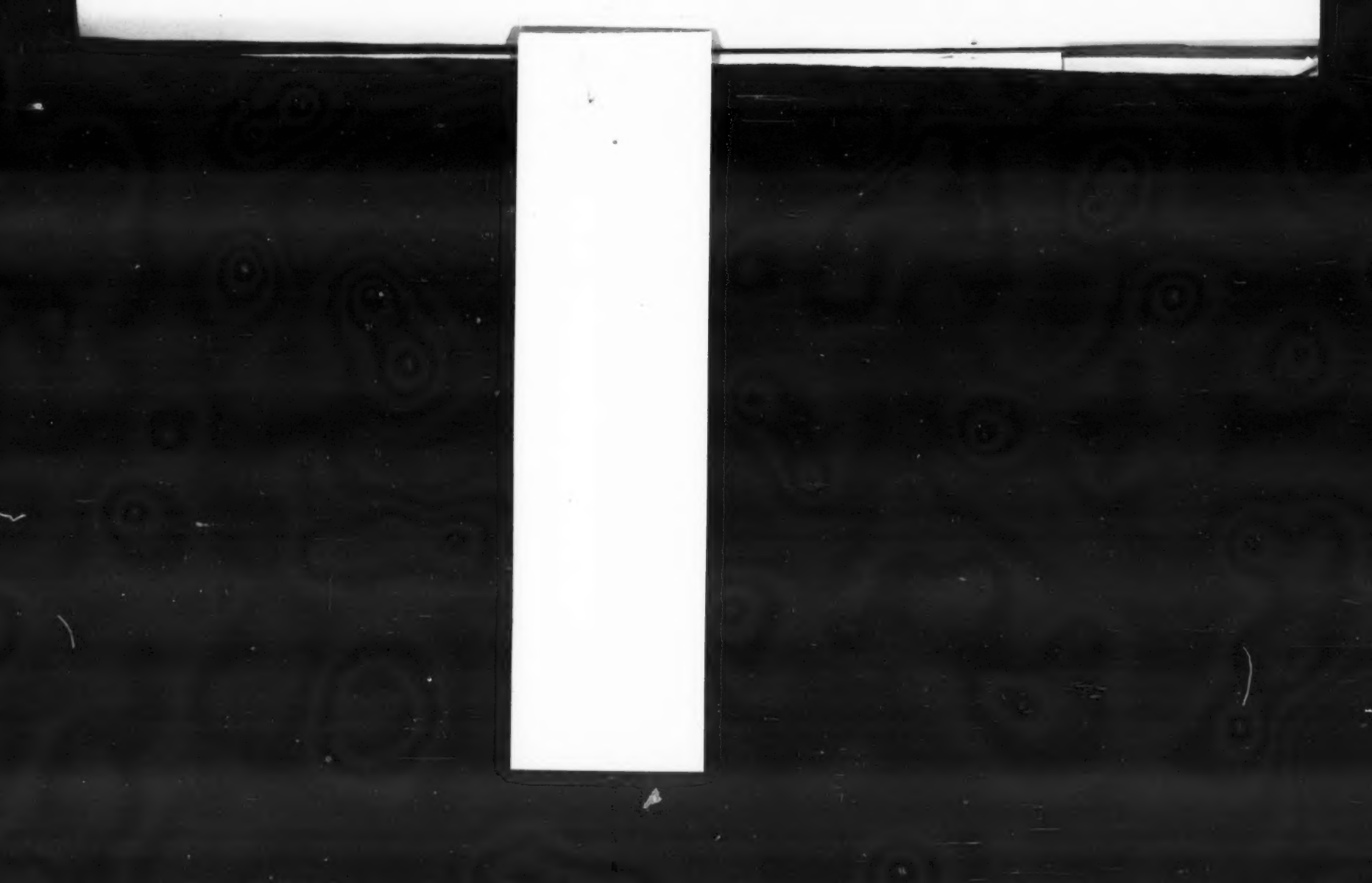
SYNOPSIS OF SPECIFICATIONS FOR STE

COMPILED FOR COMMITTEE No. 1.—AMERICAN SECTION, INTERNATIONAL ASS

Name and Date.	Kind of Material.	Chemistry.			Physical Tests.				
		Carbon Max.	Phos. Max.	Mang.	Ultimate Strength lbs. per sq. in.	Elastic Limit lbs. per sq. in.	Elongation per cent.	Reduction of area.	
The Carnegie Steel Co. Limited, Jan. 1, 1899 ...	Not Specified	.15	10	.40/.60	54,000 to 64,000.	½ ult.	25 in 8. in.	.. ....	
Robert W. Hunt, 1890.....	Pneumatic or Open Hearth.	.17	10	If Phos. exceeds 10, Carbon should not exceed 12. Phos. should not exceed 12.					
Wm. R. Webster, 1899.....	Bessemer.	.15	10	Sul. .06	Not over 64,000.	.....	25 in 8 in.	....	Fu col
Pennsylvania Railroad, Mar. 10, 1898.. ...	Bessemer or Open Hearth.	.08 to .12	.08	... ...	54,000 to 64,000.	½ ult.	20 in 8 in.	40.	
Louisville and Nashville, Dec. 1, 1894..... ..	....	.....	.085	Sul. .07	55,000 to 65,000.	Bolt hole to stand drifting 25 per cent.			
Queen and Crescent, Feb. 1892	....	..	Same as R. W. Hunt's.						
Northern Pacific Railway, Jan. 20, 1897.	....	.....	Same as R. W. Hunt's.						
Norfolk and Western Railway, Jan., 1899.....	Soft Bessemer.	10		.....	57,000.	½ ult.	25 in 8 in.	... ...	
Erie R. R. Co., April, 1897..	....	.....	.08	.....	56,000 to 64,000.	½ ult.	.25	180°θ=t	
Philadelphia and Reading Ry., Mar. 2, 1898.....	....	.....	..	.....	Not less than 48,000	... ..	25 in 2. in.	90°θ=t	
Southern Ry., July 1, 1899 .	....	....	.....	.. ..	52,000 to 62,000.	.. ....	25 in 8. in.	....	Har

ysical Tests.			
Reduction of area.	Bend Test.	Test Piece.	Branding.
....	180° flat.	Cut from head of splice bar	Name of maker and year rolled in raised letters on side of bar.
....	Full size bar to bend flat cold without fracture.	....	Initials of maker and year to be rolled on bars.
40.	180° flat.	Test piece 14 in. long, with uniform section ⅛ inch square. Cut from finished mat'l.	Number and such other marks as required by railroad Co. to be rolled on each bar as shown on drawing.
tand cent.	180° $\theta = 1\frac{1}{2} \times t$.	Sample ¾ in. dia., length between jaws of testing machine equal to 12 diameters.	
... ...	180° flat.	2 Tests 1½ in. wide. Cut from angle bar from each flow.	
180°θ=t			
90°θ=t			
....	Bar must bend 180° in. flat.		

10. All splice bars shall be smoothly rolled and true to templet. The bars shall be sheared accurately to length and free from fins or cracks, and shall perfectly fit the rails for which they are intended. The punching and notching shall accurately conform in every respect to the drawing and dimensions furnished. A variation in weight of more than 2 1/2 per cent. from that specified will be sufficient cause for rejection.



7. One test specimen cut from the head of the splice bar shall be taken from a rolled bar of each blow o melt, or if preferred the bending test may be made on an unpunched splice bar, which, if necessary, shall be flattened before testing. The bending test may be made by pressure or by blows. **Test Specimen for Bending.**

8. For the purposes of this specification, the yield point shall be determined by the careful observation of the drop of the beam or halt in the gauge of the testing machine. **Yield Point.**

9. In order to determine if the material conforms to the chemical limitations prescribed in paragraph No. 2 herein, analysis shall be made of drillings taken from a small test ingot. **Sample for Chemical Analysis.**

Finish.

10. All splice bars shall be smoothly rolled and true to templet. The bars shall be sheared accurately to length and free from fins or cracks, and shall perfectly fit the rails for which they are intended. The punching and notching shall accurately conform in every respect to the drawing and dimensions furnished.

Branding.

11. The name of the maker and the year of manufacture shall be rolled in raised letters on the side of the splice bar.

Inspection.

12. The inspector representing the purchaser, shall have all reasonable facilities afforded to him by the manufacturer, to satisfy him that the finished material is furnished in accordance with these specifications. All tests and inspections shall be made at the place of manufacture, prior to shipment.